ELM Management Plan Calendar Year 2003

I. Introduction

The Fermi Laboratory Director established the Ecological Land Management Committee (ELM) to provide technical assistance and develop recommendations for the maintenance and/or restoration of available lands. The ELM Committee's management goals are to maintain and build biological diversity, conserve natural resources and increase the site's aesthetic appeal.

The 6800-acre Fermilab site is divided into management tracts as shown on the CY 2002 Fermilab Land Management Map, which is updated annually to reflect changes in land usage. These tracts are defined by current land-use practices and habitat diversity:

- Technical Area (TA) tracts are committed exclusively to the high-energy particle physics mission of the Laboratory;
- Agricultural (AG) tracts are under licensed agreements for agricultural use;
- Recreational Area (RA) tracts support non-programmatic, recreational purposes;
- Residential (R) tract refers to the residential area in the Village;
- and Ecological Land Management (ELM) tracts enhance the natural resources of the Laboratory.

Tract boundaries are meant to be dynamic and should change with management needs and ecological considerations. However, changes in Agricultural boundaries need the Director's approval.

Annually, the ELM Committee reviews the laboratory's accomplishments towards its land management goals and recommends activities for the next year to the Director. After this general summary is prepared (Sections II and III), the Committee advises the specific management of the site's ELM tracts (IV). This section of the Annual Plan also contains a long-range coherent vision for tract development.

II. ELM Accomplishments 2002

A. Land Development

The subcommittee is currently reviewing potential agricultural lease areas on site. No new prairie plots were planted this year.

B. Flora

1. Status Report

Robert F. Betz (Botanical Report-Fermilab 2002) prepared the annual status report of flora on-site.

2. Enrichment

a. Prairie: Enrichment seed mix was broadcast in a combination of old mesic and wet areas within ELM tracts 1 and 25 by Roads and Grounds personnel.

- **MI Stockpile:** Early in the year, Roads and Grounds personnel reseeded the MI Stockpile in response to erosion problems. They also installed strips of erosion control fabric and raked in small ravines. The top of the pile was enriched with a monoculture of *Andropogon scoparius*/Little Bluestem and regularly mowed to control competing species. Little Bluestem was overseeded in the fall.

b. Woodland: Approximately 125 seedlings—consisting of bur oak, white oak, red oak and shagbark hickory species—were planted in ELM 24 by Earth Day volunteers.

3. Seed Collection

a. Hand-Harvested

Seeds from a total of 100 forb species were hand-collected by laboratory personnel and prairie harvest volunteers.

1) Summer Interns

Roads and Grounds summer interns, Ryan Campbell and Kim Slisz, made a significant contribution to the amount and variety of seed collected this year. Their harvest totals included seed from 14 woodland species and 26 prairie species (complete species list Appendix A).

2) Dr. Betz

Dr. Betz supplemented Fermilab's seed bank with collection at several local prairie systems.

3) Prairie Harvest Volunteers

Fermilab hosted two volunteer prairie harvests this year. The first in late September drew 125 people. The second harvest in early November saw a turn-out of nearly 150 people. *Physostegia virginiana*/Obedient Plant, *Allium cernuum*/Nodding Wild Onion, *Solidago rigida*/Stiff Goldenrod, and *Silphium terebinthinaceum*/Prairie Dock were targeted species at these harvests.

b. Machine-Harvested

Roads and Grounds personnel combined ELM 1, 24 and 25 for approximately 14,000 pounds of prairie matrix seed and forb seed.

c. Traded

Forb seed was received from Kane County, Will County and Kendall County in exchange for combined bulk seed.

4. Vegetation Control

As part of the noxious weed control program, Roads and Grounds personnel sprayed teasel, cottonwood, hemlock, oriental bittersweet, loosestrife, buckthorn and honeysuckle. Unfortunately, the Roads and Grounds department does not have the resources to effectively manage the spread of these invasive species.

5. Prescribed Burns

Fermilab was granted an extension on a waiver of the DOE Moratorium on Prescribed Burning waiver. Roads and Grounds personnel conducted prescribed burns in seven tracts.

C. Wildlife

1. Birds

Peter Kasper prepared the annual report on the on-site bird population which can be seen at 2002 Fermilab Bird Report. Peter Kasper also continued the compilation of bird observations since 1987, The Birds of Fermilab.

2. Butterflies

a. Status Report

The compilation of butterfly observations for the past four years may be seen at Butterfly Observations. Tom Peterson prepared the annual survey of butterflies on-site and reported his results at Butterfly Report to the ELM Committee - Fermilab - 2002.

b. Child Friendly Website

Tom Peterson's Welcome to Fermilab's Butterflies features a butterfly search engine and a guide to observing butterflies in a child-friendly website format.

c. Introduced Species

On October 2, Doug Taron from the Peggy Notebaert Nature Museum in Chicago introduced 40 Silver-bordered Fritillary caterpillars to the Meadow Fritillary habitat on the east side of the Fermilab site. Tom Peterson and Bob Lootens helped to specify the release area based on where we had seen Meadow Fritillaries and their larval host violets.

3. Frogs

The laboratory's continued participation in the "Calling Frog Survey" saw data collection expand from three sites in 2001 to fifteen sites this year. Data on frog species presence will be added to the regional herpetological atlas, which is maintained by Chicago Audubon's Habitat Project for our region. Species reported for Fermilab this year were *Rana clamitans*/Green Frog, *Rana catesbiana*/Bull Frog, *Bufo americanus*/American Toad, and *Pseudacris triceriata*/ Chorus Frog. Other species know to exist at the Lab, but not surveyed are *Hyla chrysoseles*/ Cope's Gray Tree Frog, *Pseudacris crucifer*/Spring Peeper, and *Rana pipiens*/Northern Leopard Frog. The website "Frogs at Fermilab" gives an overview of the frog species at the Lab, addresses Frequently Asked Questions, and provides numerous links to other sources of information. [Link to http://www-ed.fnal.gov/projects/frogs/index.html]

4. Deer

An aerial survey was conducted of the Fermilab site on February 1, 2002. The estimated population of deer at that time was 201—a substantially greater number than was estimated based on earlier spotlight counts. The 2002 ELM Plan called for removing 68 individuals based on the earlier estimates. During the months of February and March 2002, 96 white-tailed deer were removed—the highest number justified by the revision of population made possible by the aerial survey. Subsequent recruitment is expected to result in a population of approximately 196 individuals by February 2003. These levels suggest that the current program has resulted in a stable population as long as constant reduction of deer numbers occurs at approximately the same level. The condition of the understory continues to improve as a result of the deer management program.

D. Research

1. PST Projects

For the past two summers, the lab has sponsored the Pre-Service Teacher (PST) program. Through this DOE-funded program, pre-service teachers are engaged in direct research. Each teacher is paired with an ELM Committee member who helps him/her to develop a research project. This year the pairings and projects were: Peter Kasper, Henslow Sparrows; Rod Walton, Stream Monitoring; and Tom Peterson, Butterfly Monitoring. The Education Center supplied PST participants with equipment and workspace.

2. NERP Projects

One NERP project, Biodiversity of Arbuscular Mycorrhizal Fungi and the Success of the Prairie Restoration, conducted by James Bever from the University of California-Irvine, was completed in 2002. Three projects—bird species composition at Fermilab, the effects of species richness on the establishment and success of *Alliaria petiolata*/Garlic Mustard, and the role of insect flower herbivory in native and restored prairies—were discontinued due to lack of funding. A total of eight new NERP projects were approved in 2002. Project titles followed by principal investigator and institution are:

- Observations of the Heron Rookery/Workman/IMSA
- Species Composition and Distribution in the Reconstructed Prairie/Rozdilsky/Princeton University
- Bat House Project/Klein/Windy City Grotto
- Translocation of the Silver-Bordered Fritillary (*Bolaria selene*)/Taron/Chicago Academy of Science
- Vegetation Structure in Prairies and Prairie Reconstructions/Amman/UIC
- Understanding Succession in the Context of Herbivory/Abbot/University of Chicago
- IDNR Forest Watch Monitoring/Rhodes/IDNR
- Assessing Carbon Cycling in Restored Grasslands Using Stable Isotopes/Gonzalez-Meler/ UIC/ANL

Additionally, researchers continue work on the following five projects:

- Assessment of the Impact of Biological Controls on Garlic Mustard (*Alliara petiolata*) and Non-target Species in Forest Communities/Nuzzo with Blossey/Natural Area Consultants and Cornell University
- Effects of Tree Removal on Recovery of Ground Cover in Big Woods at Fermilab/Aicher/ Northern Illinois University
- Differences in Reproductive Success of Prairie Plant Species between Restored and Remnant Prairies/Jastrow/Argonne National Laboratory
- Carbon Sequestration in Terrestrial Ecosystems/Jastrow et al./U.S. DOE
- Bird Surveys at Fermilab/Kasper with Kania and Pomatto/Fermilab and DuPage Birding Club

E. Community Outreach

1. Third Thursday Clean-Ups

Roads and Grounds personnel continued to organize site clean-ups on good-weathered third Thursdays. Between ten and twenty-five volunteers picked up litter on Pine Street, the Footprint area, and D Rd.

2. Prairie Harvest

This year's prairie harvests were again successful in collecting large quantities of desirable species for future prairie enrichment. Total turn-out for the two volunteer fall harvests was over 250 people.

3. Earth Day

Earth Day tree planting activities in ELM 24 continue to advance the Committee's goal of connecting the Big Woods and Site 29 Woods to create a higher quality, less fragmented woodland. Approximately 125 volunteers turned out for the event.

4. Seed Donation

The Laboratory donated seed to seven area schools, Gensberg Markham Prairie, Camp Dean Girl Scouts, St. Charles Park District, McHenry County Land Conservation Foundation, and Prairie Landing Golf Course.

5. Prairie Reconstruction Video

The ELM Video Subcommittee, chaired by Beth Witherell, was founded to create a video about the prairie restoration effort at Fermilab for the general public, especially the many users of the Lederman Science Education Center. Charron McFadden, a 2001 MA graduate of the Department of Communication at Northern Illinois University, completed the script this spring. In the fall, Visual Media Services filmed Batavia students as part of the frame in which the restoration story is set. Hector Elizondo, a versatile actor and well-known voice, agreed to do the voiceover free of charge. When we have his recording, the Video Media Services staff will pull the existing video footage together to create a rough cut for audience review. A finished video is planned for 2003.

6. **Christmas Bird Counts**
   Members of the DuPage Birding Club organized and conducted the annual spring and Christmas Bird Counts on site. The results of the latter may be viewed at Christmas Bird Count.

7. **Eagle Scout Projects**
   Fermilab continues to benefit from local Eagle Scout projects. This year one project featured a special prairie seed harvest in which thirty-four volunteers collected large amounts of *Monarda fistulosa*/Wild Bergamot, *Penstemon digitalis*/Foxglove Beard Tongue, *Spartina pectinata*/Prairie Cord Grass, *Rudbeckia hirta*/Black-Eyed Susan, and *Eupatorium maculatum*/Spotted Joe Pye Weed. A second project saw the planting of approximately 324 oak and hickory seedlings in the Nursery.

III. ELM Recommendations 2003

The ongoing activities of Roads and Grounds personnel such as mowing, prescribed burning, enrichment, redistribution of small trees, and noxious weed control are critical to maintaining and building on the Laboratory's ecological improvements. Restoration goals can be further advanced through continued habitat development, intern and community participation, and research programs.

A. Habitat Development

1. Transitional Zones

Savanna-like zones between prairie restorations and adjacent woodlands have been shown to support greater species diversity and species richness. The Committee recommends that enrichment efforts promote development of these transitional zones.

2. Tree Removal

Cottonwood, buckthorn and other undesirable tree species negatively impact the higher-quality habitats on which they encroach. The Committee recommends that these trees be removed as the Roads and Grounds Department schedule permits.

B. Intern and Community Participation

1. Interns

Previous contributions of Roads and Grounds interns include the pollination of rare lily species on-site, the collection of high-quality seed that was previously uncollected due to time and resource constraints, and the advancement of educational programs like the Fermilab Plant Database. The Committee recommends continued funding of an internship position in the Roads and Grounds Department.

2. Community

Additionally, community participation in Earth Day plantings, Eagle Scout projects, and Volunteer Prairie Harvests have made an invaluable contribution to the Laboratory's management program; and the Committee recommends continued Laboratory support for community participation.

C. Research Programs

The Laboratory currently supports a variety of research opportunities and the Committee recommends that we continue to participate and seek out projects compatible with the ecological goals of the Laboratory. The Committee also recognizes a need to update the NERP database and encourage greater congruence in management procedures and research design. The Committee also recommends the maintenance of a database of potential research projects for PST program participants.

IV. TRACT MANAGEMENT 2003

- **ELM-1/Inside the Tevatron berm and extending northeast**

Features

Habitat: Prairie; oak savanna; Lake Logo and Main Ring Lake wetland complexes
Wildlife: Great Blue Heron and Egret rookery; remnant-dependent Black Dash and Eyed Brown; remnant-associated Delaware Skipper
Research: 2 sets of deer exclosures and adjacent controls; NERP project "Observations of the heron rookery"
Access: Controlled
Other: Site of volunteer harvest

Long Range Plan

Habitat Goal: Prairie; wetland
Enrichment: Overseed needed species
Fire Management: Burn every 1 to 3 years depending on extent of woody brush infestation; recommend burning only a northern quarter and a southern quarter each fall to maintain habitat for over-wintering birds
Vegetation Control: Cottonwoods
Mowing: N/A

2002 Accomplishments and Observations

Enriched prairie and marshes with late successional forb species.
Burned southeast quarter in fall.
Applied herbicide to cottonwoods.

2003 Plan

Control invasive brush.
Burn remainder in spring.

- **ELM-2/Near the center of the Tevatron berm**

Features

Habitat: Oak savanna with degraded, brushy understory
Wildlife: N/A
Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Oak savanna
Enrichment: Overseed with savanna understory species
Fire Management: Burn every 1 to 3 years depending on extent of woody plant infestation
Vegetation Control: Weedy brush and aggressive tree species such as box elder and cottonwoods; loosestrife
Mowing: N/A

2002 Accomplishments and Observations

Enriched with savanna species.
Discovered some oak regeneration.
Applied herbicide to loosestrife.

2003 Plan

Burn in spring.
Continue thinning woody invasives.
Mow firebreaks around young oak seedlings.

- **ELM-3/Western part of the interior of the Tevatron berm**

Features

Habitat: Poor condition wetland with many weedy tree species; large sections underwater
Wildlife: N/A
Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Wet woodland
Enrichment: With native wet woodland native species
Fire Management: Burn every 1 to 3 years
Vegetation Control: Cottonwoods
Mowing: N/A

2002 Accomplishments and Observations

None.

2003 Plan

Enrich with shade-tolerant species.
Continue cottonwood control.
Burn with ELM-1.

- **ELM-4/Eastern portion of Main Injector extending south and east**

Features

Habitat: Mesic and wet prairie; woods containing mature shellbark hickory and a Biltmore ash and site's only mature blue ash and white walnut trees
Wildlife: N/A
Research: NERP project "Quantitative study of prairie succession"
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Prairie; woods; wetland
Enrichment: Overseed needed prairie species and woodland understory species; enrich woods with appropriate trees

Fire Management: Burn every 1 to 3 years; avoid burning without consulting NERP researcher
Vegetation Control: Teasel
Mowing: Every other year in non-prairie areas

2002 Accomplishments and Observations

Reseeded MI Stockpile with Little Bluestem.
Mowed Stockpile area several times.
Repaired washouts on slopes.
Removed woody invasive trees in wetland mitigation area.
Applied herbicide to teasel.

2003 Plan

Continue control of invasive tree species in wetland mitigation area.
Before the end of July, mow newly seeded area on Stockpile to enhance native grass growth.
Regrade and seed any washouts that develop.

- **ELM-5/Along the southern boundary of the site, adjacent to Butterfield Rd.**

Features

Habitat: Brush; 30-year-old trees
Wildlife: Breeding area for Bell's vireo and yellow-breasted chats
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Unmanaged
Enrichment: N/A
Fire Management: N/A
Vegetation Control: Teasel
Mowing: N/A

2002 Accomplishments and Observations

Mowed under power lines.
Cleared considerable brush under power lines.
Applied herbicide to teasel.

2003 Plan

Mow where possible.

- **ELM-6/South of Tevatron**

Features

Habitat: Plowed field
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Pending evaluation
Enrichment: Pending evaluation
Fire Management: Pending evaluation
Vegetation Control: Pending evaluation
Mowing: Pending evaluation

2002 Accomplishments and Observations

Mowed where possible.

2003 Plan

Land Management Subcommittee to investigate land use options.

- **ELM-7/Southeast corner of the site**

Features

Habitat: Early stage mesic prairie; pasture grass
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Prairie; grassland
Enrichment: N/A
Fire Management: N/A
Vegetation Control: N/A
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.

2003 Plan

Mow late summer.

- **ELM-8/West of Tract ELM-7**

Features

Habitat: Early stage mesic prairie; pasture grass; hardwood seedling nursery
Wildlife: N/A
Research: NERP project “Carbon sequestration”; several buried lysometers and associated aboveground wiring require care
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Maximize usefulness for potential future research
Enrichment: As resources permit
Fire Management: As resources permit
Vegetation Control: As resources permit

Mowing: Pasture grass every other year

2002 Accomplishments and Observations

Mowed late summer.
Planted additional seedlings.
Burned in spring.

2003 Plan

Mow late summer.
Burn if time permits.
Continue to develop nursery; stake and mulch seedlings.

- **ELM-9/Along east side of site from Batavia Rd. to Butterfield Rd.**

Features

Habitat: Sea of Evanescence and AE Sea shoreline; pasture grass fields in north; fallow ground in south; heavy mixed brush and planted trees
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Wetland
Enrichment: N/A
Fire Management: N/A
Vegetation Control: Teasel
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.

2003 Plan

Mow late summer or early fall.

- **ELM-10/East of Tevatron, west of Eola Rd.**

Features

Habitat: Wetland; mesic prairie
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Wetland; prairie
Enrichment: With native prairie forbs
Fire Management: Every 1 to 3 years
Vegetation Control: Loosestrife
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late fall.
Applied herbicide to loosestrife.

2003 Plan

Mow late summer or early fall.
Reseed areas disturbed by utility construction with matrix seed.

- **ELM-11/Along Eola Rd. east of Tevatron**

Features

Habitat: Pasture grass; shrubs; wetland pocket in south-central; tree nursery; topsoil stockpile
Wildlife: N/A
Research: N/A
Access: Open
Other: Model Rocket Club site

Long Range Plan

Habitat Goal: Grassland
Enrichment: N/A
Fire Management: Burn wetland as resources permit
Vegetation Control: Undesirable trees
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.
Applied herbicide to several widely scattered undesirable trees.

2003 Plan

Continue plan to mow every other year.
Remove or herbicide more undesirable trees.

- **ELM-12/North of ELM-8**

Features

Habitat: Early stage mesic prairie; Little Bluestem monoculture; pasture grass
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Pending evaluation
Enrichment: Pending evaluation
Fire Management: Pending evaluation
Vegetation Control: Pending evaluation
Mowing: Every other year

2002 Accomplishments and Observations

Mowed grasslands.

2003 Plan

Monitor Little Bluestem tract for potential harvest.
Overseed Little Bluestem areas as seed becomes available.

- **ELM-13/East of ELM-12**

Features

Habitat: Early stage mesic prairie; pasture grass
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Pending evaluation
Enrichment: As resources permit
Fire Management: As resources permit
Vegetation Control: N/A
Mowing: Grasslands every other year

2002 Accomplishments and Observations

Mowed late summer.

2003 Plan

Continue with plan to mow every other year.

- **ELM-14/Between and south of Lake Law and AE Sea**

Features

Habitat: Lake Law and AE Sea shorelines; oak-hickory woods; hedge row along southern boundary; invasive brush
Wildlife: Bell's vireos and yellow-breasted chats
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Intermediate stage open scrub transitioning into brushy edge at woods
Enrichment: N/A
Fire Management: Every 1 to 3 years
Vegetation Control: Non-native trees; loosestrife
Mowing: N/A

2002 Accomplishments and Observations

Applied pesticide to loosestrife.

2003 Plan

Burn eastern half in spring.

Remove or herbicide 10% of non-native larger trees. (Accomplished last week of January, 2003)
Land Management Subcommittee to re-evaluate management plan.

- **ELM-15/Southeast corner of Batavia and Eola Rds.**

Features

Habitat: Upland pasture grass; Lake Law shoreline
Wildlife: Upland sandpiper and Henslow's sparrows
Research: NERP project "Feedback between plants, mycorrhizal fungi, and soil nutrient dynamics"; several areas marked for soil sampling
Access: Open
Other: Dog Training Area

Long Range Plan

Habitat Goal: Grassland
Enrichment: N/A
Fire Management: N/A
Vegetation Control: Loosestrife
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.
Applied pesticide to loosestrife.

2003 Plan

Continue to control noxious weeds.

- **ELM-16/Along and on either side of Eola Rd. north of Batavia Rd.**

Features

Habitat: Pasture grass; wetland
Wildlife: Upland sandpiper and Henslow's sparrows
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Grassland; wetland
Enrichment: N/A
Fire Management: N/A
Vegetation Control: Loosestrife
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.
Applied pesticide to loosestrife.

2003 Plan

Continue to control noxious weeds.

- **ELM-17/West of Village, north of Batavia Rd.**

  Features

  Habitat: Pasture grass
  Wildlife: Upland sandpiper and Henslow's sparrows; wintering owls
  Research: N/A
  Access: Open
  Other: N/A

  Long Range Plan

  Habitat Goal: Grassland
  Enrichment: N/A
  Fire Management: N/A
  Vegetation Control: N/A
  Mowing: Every other year

  2002 Accomplishments and Observations

  Mowed late summer.

  2003 Plan

  Continue with plan to mow every other year.

- **ELM-18/Wraps around north and west sides of Village**

  Features

  Habitat: Mixed woods; lots of brush; many planted conifers and aesthetic trees
  Wildlife: Wintering owls and mammals
  Research: N/A
  Access: Open
  Other: N/A

  Long Range Plan

  Habitat Goal: Natural succession
  Enrichment: N/A
  Fire Management: N/A
  Vegetation Control: N/A
  Mowing: Adjacent to Batavia Rd. for aesthetic reasons

  2002 Accomplishments and Observations

  Mowed.

  2003 Plan

  Mow.

- **ELM-19/East of Village**

  Features

  Habitat: Eastern DUSAF Pond and Oxidation Pond shorelines; pasture grass and 25-year-old trees in south; invasive brush, large white oak and ash in west central
  Wildlife: Brush birds; Meadow Fritillaries

Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Undisturbed brush and shorelines; grassland; Oxidation Pond
Enrichment: Native wetland species in Oxidation Pond
Fire Management: N/A
Vegetation Control: Teasel
Mowing: Every other year

2002 Accomplishments and Observations

Mowed late summer.
Applied pesticide to teasel.

2003 Plan

Control teasel.

- **ELM-20/Along eastern boundary south of Wilson St.**

Features

Habitat: Emergent wetlands; wet prairie with mesic and upland features; remnant prairie
Wildlife: Remnant-dependent Meadow Fritillaries and Eyed Browns; remnant-associated Coral Hairstreaks and Delaware Skippers; Silver-Bordered Fritillary
Research: NERP project "Translocation of silver-bordered fritillaries"
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Wetland; prairie
Enrichment: Overseed desired species in prairie remnant
Fire Management: Burn prairie remnant every 1 to 3 years
Vegetation Control: Teasel; oriental bittersweet; hemlock
Mowing: Every other year; special consideration in areas marked for NERP project

2002 Accomplishments and Observations

Mowed.
Applied pesticide to teasel, oriental bittersweet and hemlock.
Silver-bordered fritillary caterpillars released near host violets.

2003 Plan

Stagger mowing in fritillary habitat.
Monitor fritillary activity.
Control noxious weeds.

- **ELM-21/Northeastern corner of site**

Features

Habitat: Young mesic prairie and upland prairie plantings
Wildlife: N/A

Research: N/A
Access: Open
Other: N/A

Long Range Plan
Habitat Goal: Prairie
Enrichment: Enrich with native prairie forbs
Fire Management: Every 1 to 3 years
Vegetation Control: Teasel; oriental bittersweet; hemlock
Mowing: N/A

2002 Accomplishments and Observations
Applied pesticide to teasel, oriental bittersweet and hemlock.

2003 Plan
Burn.
Control noxious weeds.

- **ELM-22/North of railroad, east of McChesney Rd.**

Features
Habitat: Old field with invasive brush
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan
Habitat Goal: Permanently changing to agricultural license for sod production
Enrichment: N/A
Fire Management: N/A
Vegetation Control: N/A
Mowing: N/A

2002 Accomplishments and Observations
None.

2003 Plan
None.

- **ELM-23/North part of site south of railroad tracts, west of railhead storage**

Features
Habitat: Prairie remnant
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Prairie
Enrichment: Overseed newer prairie areas
Fire Management: Every 1 to 3 years
Vegetation Control: N/A
Mowing: Non-prairie areas every other year

2002 Accomplishments and Observations

Overseeded new prairie areas in spring.
Burned remnant prairie in fall.
Overseeded with prairie matrix in weedy areas in fall.

2003 Plan

Enrich new prairie areas.
Monitor for remnant-dependent butterfly species.
Burn.

- **ELM-24/West part of site extending from Wilson St. to south of Giese Rd.**

Features

Habitat: Woodland remnant; prairie
Wildlife: Remnant-associated Great Spangled Fritillary, Northern Pearly Eyes, Gray Commas and Banded Hairstreaks in savanna-like openings at woodland edge
Research: 2 sets of deer exclosures; permanent transect for support of deer management program in Big Woods; NERP projects "Assessing impact of biological controls on Garlic Mustard," "Effects of Tree Removal," "Bat House Project," and "IDNR Forest Watch monitoring"
Access: Open
Other: Lederman Education Center

Long Range Plan

Habitat Goal: Woodland with transitional habitat edges
Enrichment: Woodland understory species; plant trees in corridor to connect existing wooded areas
Fire Management: Every 1 to 3 years; exclude Garlic Mustard NERP project area
Vegetation Control: Teasel; buckthorn and honeysuckle
Mowing: N/A

2002 Accomplishments and Observations

Applied pesticide to teasel, buckthorn and honeysuckle.
Planted 70 trees for Earth Day.

2003 Plan

Land Management Subcommittee to evaluate land use of open field east of Director's driveway.
Continue efforts to create transitional habitat along edges of woods

- **ELM-25/Along west side of site from Giese Rd. to south of Wilson St.**

Features

Habitat: Woods; wetland in northwest; new prairie

Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Woodland with transitional habitat edges; wetland; prairie
Enrichment: Overseed needed species in prairie
Fire Management: Prairie every 1 to 3 years
Vegetation Control: Teasel
Mowing: N/A

2002 Accomplishments and Observations

Heavily enriched.
Burned in spring.
Applied pesticide to teasel.

2003 Plan

Enrich.
Burn in fall.

- **ELM-26/Along west side of site south of ELM-24, includes western part of Main Injector**

Features

Habitat: Prairie
Wildlife: N/A
Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Prairie
Enrichment: Overseed needed species
Fire Management: Every 1 to 3 years
Vegetation Control: Teasel
Mowing: Non-prairie areas every other year

2002 Accomplishments and Observations

Harvested seed.

2003 Plan

Burn.

- **ELM-27/Along Indian Creek inside Main Injector**

Features

Habitat: Floodplain woods with swampy areas
Wildlife: Dion Skippers
Research: N/A
Access: Controlled

Other: N/A

Long Range Plan

Habitat Goal: Floodplain woods; wetland
Enrichment: Plant trees; enrich understory; enrich wetlands
Fire Management: N/A
Vegetation Control: N/A
Mowing: None

2002 Accomplishments and Observations

None.

2003 Plan

Land Management Subcommittee to make recommendations

- **ELM-28/Northeast of Tevatron berm**

Features

Habitat: Prairie
Wildlife: N/A
Research: N/A
Access: Open
Other: N/A

Long Range Plan

Habitat Goal: Prairie
Enrichment: Enrich intensively as resources permit
Fire Management: Every 1 to 3 years
Vegetation Control: N/A
Mowing: N/A

2002 Accomplishments and Observations

Overseeded with prairie matrix.
Enriched with forbs.
Burned in spring.

2003 Plan

Burn in spring.
Overseed with prairie matrix along disturbed utility corridor areas adjacent to the Tevatron.

A**ppendix 1. Species collected by summer interns.**

In the woodland areas, *Sanguinaria canadensis*/Bloodroot, *Polemonium reptans*/Jacob's Ladder, *Phlox divaricata*/Blue Phlox, *Hydrastis canadensis*/Golden Seal, *Trillium grandiflorum*/ Large-Flowered Trillium, *Uvularia grandiflora*/Bellwort, *Lithospermum latifolium*/ Broad-Leaved Puccoon, *Hystrix patula*/Bottlebrush Grass, *Iris virginica*/Blue-Flag, *Actaea pachypoda*/White Baneberry, *Carya ovata*/Shagbark Hickory, *Quercus rubra*/Red Oak,

Quercus macrocarpa/Bur Oak, and *Quercus alba*/White Oak seeds were collected. In the prairie areas, the interns additionally collected *Pedicularis canadensis*/Wood Betony, *Sisyrinchium albidum*/Blue-Eyed Grass, *Panicum leibergii*/Panic Grass, *Phlox pilosa*/ Prairie Phlox, *Heuchera richardsonii*/Alum Root, *Polygala senega*/Seneca Snakeroot, *Comandra richarsiana*/False Toadflax, *Lobelia spicata*/Pale Spiked Lobelia, *Anemone canadensis*/Meadow Anemone, *Carex bicknellii*/Bicknell's Sedge, *Sisyrinchium angustafolium*/Stout Blue-Eyed Grass, *Allium canadense*/Wild Onion, *Galium obtusum*/ Wild Madder, *Galium boreale*/Northern Bedstraw, *Tradescantia ohiensis*/ Spiderwort, *Zizia aurea*/Golden Alexanders, *Phlox glaberrima*/Marsh Phlox, *Amorpha canescens*/ Lead Plant, *Baptisia leucantha*/White Wild Indigo, *Thalictrum sp.*/Meadow Rue, *Lysimachia quadriflora*/Prairie Loosestrife, *Anemone cylindrica*/Thimbleweed, *Desmodium canadense*/Showy Tick Trefoil, *Petalostemum candidum*/White Prairie Clover, *Petalostemum purpureum*/Purple Prairie Clover, and *Veronicastrum virginicum*/ Culver's Root.